

***Cinetorhynchus manningi*, a new shrimp
(Crustacea: Decapoda: Caridea: Rhynchocinetidae)
from the western Atlantic**

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Abstract.—A new rhynchocinetid shrimp, *Cinetorhynchus manningi*, is described and illustrated based on two ovigerous female specimens from the western Atlantic Ocean. The new species is readily distinguished from the other seven congeners by the absence of arthrobranchs on the second and third pereopods, and constitutes the second rhynchocinetid from the Atlantic ocean.

Shrimps of the family Rhynchocinetidae differ from other caridean shrimps by having a typically movable rostrum, fine transverse striae on the surfaces of the carapace and abdominal somites, first two pairs of pereopods robust, fingers bearing long lateral and terminal spines, and second pereopod with carpus entire, not subdivided. Holthuis (1995) divided the genus *Rhynchocinetes* s.l. into two subgenera, *Rhynchocinetes* H. Milne-Edwards, 1837 and *Cinetorhynchus* Holthuis, 1995. Okuno (in press) elevated these subgenera to generic rank, and included in *Cinetorhynchus* six species from the Indo-Pacific and one from the Atlantic Ocean.

During this study, I examined several specimens previously identified as *C. rigens* (Gordon, 1936) captured from various localities in the Atlantic Ocean. In these materials, two ovigerous female specimens of an undescribed species were found. The new species differs from the other seven congeners by the absence of arthrobranchs on the second and third pereopods. I provide herein the description and illustrations for this second Atlantic rhynchocinetid shrimp.

Method of measuring follows Okuno (in press). The postorbital carapace length is abbreviated as CL. The abbreviation USNM indicates National Museum of Nat-

ural History, Smithsonian Institution, Washington, D.C.

Cinetorhynchus manningi, new species
Figs. 1, 2

Rhynchocinetes rigens.—Manning, 1961:1 (in part) (not *Rhynchocinetes rigens* Gordon, 1936).

Material.—Caribbean Sea: USNM 277772, holotype, ovigerous female, 8.5 mm CL, Virgin Islands, Eagle Shoal, 10.5 m, 1 Feb 1961; USNM 277773, paratype, ovigerous female, 8.0 mm CL, Florida, off Elliot Key, Bache Shoals, 4.5 m, 4 May 1960, coll. C. R. Robins.

Description.—A rather robust rhynchocinetid shrimp of subcylindrical body form (Fig. 1).

Carapace with many fine transverse striae. Three acute teeth on dorsal carina behind rostral articulation, anterior tooth largest. Antennal spine sharply pointed, considerably exceeding anterior margin of carapace. Anterolateral angle of carapace rounded, without pterygostomian spine.

Rostrum (Fig. 2A) well developed, indistinctly articulated with carapace, distinctly overreaching apex of scaphocerite; length 1.7 times as long as carapace; lateral carina distinct, reaching end of proximal third of rostrum, continuous with upper orbital margin; dorsal margin with 2 large proximal

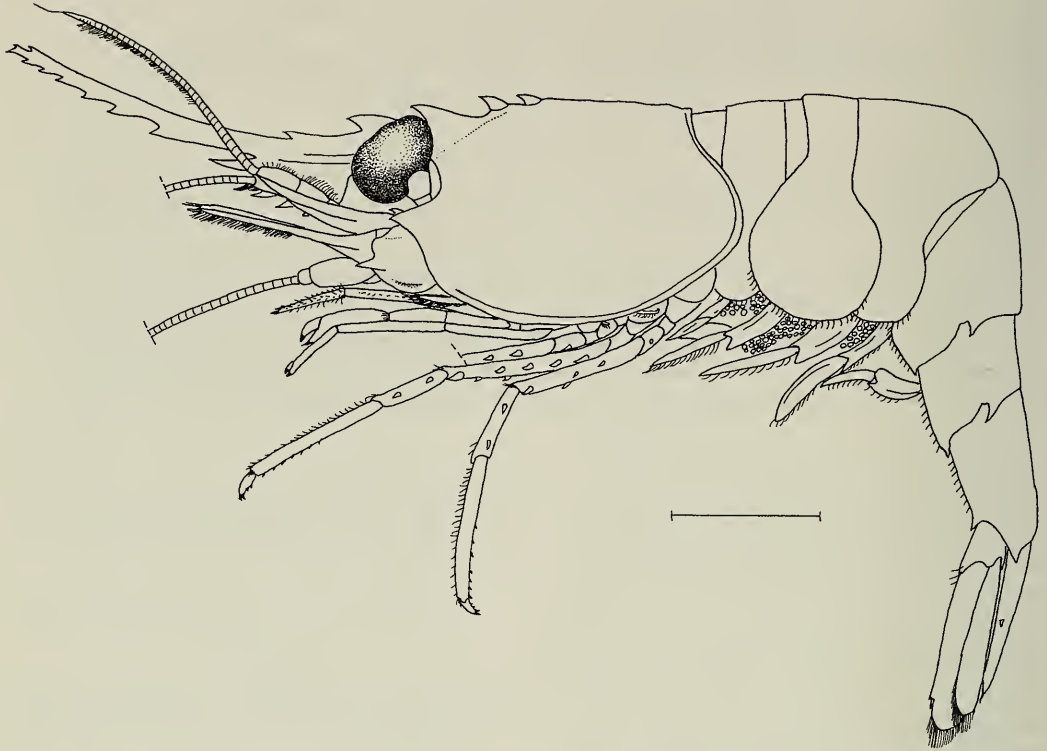


Fig. 1. *Cinetorhynchus manningi*, new species. Oviparous female, holotype (USNM 277772, 8.5 mm CL), lateral view. Scale equals 5 mm.

teeth, 2 small teeth subterminally; ventral margin with 10 teeth, proximal 4 teeth strong, separated by distinct interval from proximal tooth of distal series, distal 6 teeth considerably smaller than proximal four teeth, decreasing in size distally.

Abdominal somites with fine transverse striae; pleura of first 3 somites rounded; fourth somite with small, distinct or indistinct protrusion posteroventrally; fifth somite with acute protrusion posteroventrally; posterolateral margin of fourth and fifth somites each with acutely pointed tooth directed posteriorly; sixth somite rather compressed, 0.6 times as long as carapace, 2.1 times as long as its width, with acutely pointed posteroventral spine directed obliquely backwards, with acute anal spine between uropodal basiscerites.

Telson (Fig. 2B) 0.6–0.7 times as long as carapace, 1.1–1.2 times as long as sixth ab-

dominal somite, rather convex dorsally; spination of dorsal surface in holotype abnormal, with 2 small spines on right side and a single small spine at left side, paratype has normal spination, armed with 3 pairs of small spines; posterior margin prominent, bearing 3 pairs of spinules at each side, intermediate spinules longest.

Eye with pigmented, rounded cornea, eyestalk much slenderer than cornea.

Antennular peduncle (Fig. 2C) reaching end of proximal third of rostrum; thickened part of the upper flagellum reaching to about rostral apex; proximal segment with distal margin acutely pointed, inner margin ventrally with acute spine, surface concave; stylocerite well developed, reaching distal margin of distal segment; statocyst longitudinally oval.

Scaphocerite (Fig. 2D) well developed, reaching midlength of rostrum, 0.8 times as

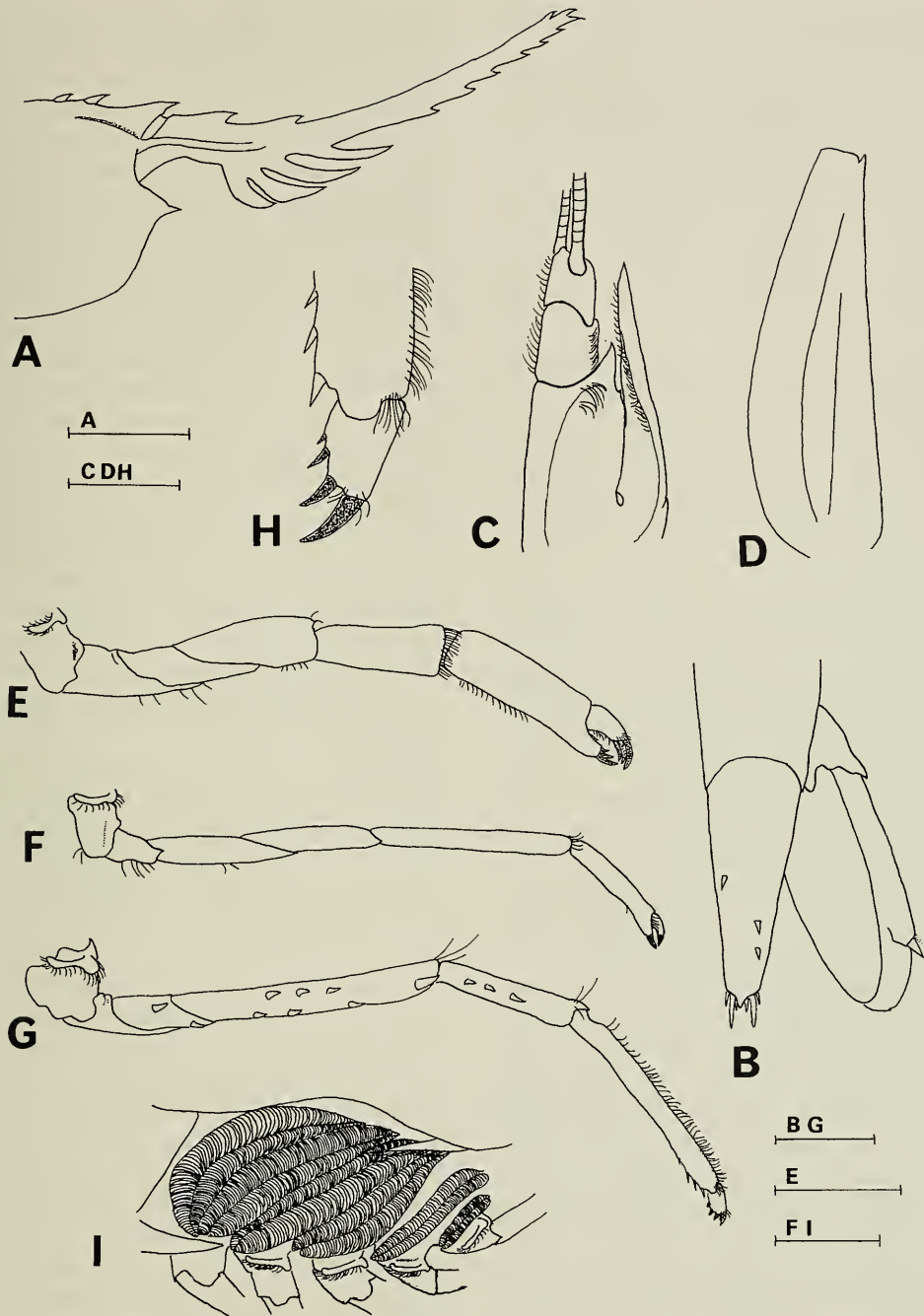


Fig. 2. *Cinetorhynchus manningi*, new species. A-H, ovigerous female, holotype (USNM 277772, 8.5 mm CL); I, ovigerous female, paratype (USNM 277773, 8.0 mm CL). A, anterior part of carapace with rostrum; B, telson and right uropod; C, antennular peduncle; D, scaphocerite; E, first pereiopod; F, second pereiopod; G, third pereiopod; H, dactylus of third pereiopod; I, gill complement of pereiopods. Scales equal 5mm (A), 2 mm (B-G, I), and 0.5 mm (H).

Table 1.—*Cinetorhynchus manningi*, new species. Branchial formula.

	Maxillipeds			Pereiopods				
	I	II	III	I	II	III	IV	V
Pleurobranchs	—	—	—	1	1	1	1	1
Arthrobranchs	—	—	2	1	—	—	—	—
Podobranchs	—	1	—	—	—	—	—	—
Epipods	1	1	1	1	1	1	1	—
Exopods	1	1	1	—	—	—	—	—

long as carapace, 3.3–3.4 times as long as its maximum width; external distal spine acute, reaching level of distal margin of lamella; basicerite covered with fine transverse striae, with acute spine directed anteriorly and terminal rounded lobe just above spine; carpocerite reaching end of proximal third of scaphocerite.

Branchial formula as shown in Table 1.

Mouthparts typical of genus. Mandible with three-segmented palp, distal segment rounded distally, with short dense setae, intermediate segment longest of all, distal margin with long sparse setae; incisor process stout, with sharp distal teeth; molar process subcylindrical, broad, with feeble distal setae and numerous corneous slits. First maxilla with feebly bifid slender palp, with denticulate long setae distally; distal lacinia broad, lateral margin convex, with sparse setae, distal margin straight, with 2 rows of small, stout spinules; proximal lacinia broader than distal lacinia, feebly square distally. Second maxilla with distinct palp, proximally broad, distally slender; coxal endite broad, distal margin truncate, with numerous long setae distally; distal endite bilobed, upper lobe feebly square distally, broader than lower lobe, with dense setae distally, lower lobe with rather straight distal margin, with dense setae; scaphognathite well developed, anterior lobe with feebly square distal end, posterior lobe very slender, inner margin convex, elongated posteriorly, reaching anterior part of third pleurobranch. First maxilliped with elongate, 3-segmented palp, intermediate segment longest of all, distal segment very

small; distal endite expanded distally, broader than proximal endite, with distal margin with dense setae; proximal endite rounded, with dense setae distally; exopod well developed, caridean lobe slender, flagellum with numerous setae distally; epipod large, rounded. Second maxilliped with oval epipod having well developed podobranch; distal margin of dactylus almost straight, with long dense setae; propodus with distal margin rounded, inner margin feebly expanded. Third maxilliped reaching distal third of scaphocerite; antepenultimate segment with acute spine distolaterally; penultimate segment 0.3 times as long as carapace, with sparse setae on outer surface; ultimate segment 0.5 times as long as carapace, 1.5–1.6 times as long as penultimate segment, with 6–8 dark horny claws at apex, covered uniformly with dense setae except distal fourth.

First pereiopod (Fig. 2E) stout, reaching end of proximal third of scaphocerite; chela slightly compressed, 0.4 times as long as carapace, 1.6–1.7 times as long as carpus, palm with short dense setae on proximal ventral margin, both fingers slightly curved mesially, with dark claws terminally; carpus 0.2 times as long as carapace, distal margin truncate, with dense cluster of rather long setae.

Second pereiopod (Fig. 2F) slenderer than first pereiopod, falling short of mid-length of scaphocerite; chela 0.3 times as long as carapace, both fingers slightly curved inside, with dark horny claws terminally; carpus long, 0.4–0.5 times as long as carapace, 1.5–1.6 times as long as chela.

Third to fifth pereiopods rather slender, similar; dactyli (Fig. 2H) with three horny claws posterior to terminal largest claw, decreasing in size proximally; propodi with slightly dense setae on upper margin, with sparse spinules at distal $\frac{2}{3}$ of lower margin, terminal spinule largest of all; ischia with 2 articulated spines on outer surface and lower margin. Third pereiopod (Fig. 2G) reaching level of distal end of scaphocerite; merus 0.6–0.7 times as long as carapace, 2.0

times as long as carpus, with 4–5 articulated spines on outer surface, proximal spines equidistant, distal spine subterminal, distinctly separated from proximal series, with 3 spines on lower margin, and sparse long setae dorsodistally; carpus 0.3 times as long as carapace, with 2–3 articulated spines on outer surface, with sparse long setae at upper margin preterminally; propodus 0.5–0.6 times as long as carapace, 1.7 times as long as carpus. Fourth pereiopod falling short of distal end of scaphocerite; merus 0.6 times as long as carapace, with 4–5 articulated spines on outer surface, 2–3 articulated spines on lower margin; carpus 0.3–0.4 times as long as carapace, with 2 articulated spines on outer surface, with sparse long setae at upper margin preterminally; propodus 0.6 times as long as carapace, 1.6–1.8 times as long as carpus. Fifth pereiopod reaching midlength of scaphocerite; merus 0.5–0.6 times as long as carapace, 1.5–1.6 times as long as carpus, with three articulated spines on outer surface, a single spine situated at distal third of lower margin; carpus 0.4 times as long as carapace, spination similar to that of fourth pereiopod; propodus 0.6 times as long as carapace, 1.6 times as long as carpus.

Uropodal exopod (Fig. 2B) with articulated and non-articulated spines at distal third of outer border.

Coloration.—Unknown.

Etymology.—The present new species is named for Dr. Raymond B. Manning, in honor of his valuable contributions to our knowledge of western Atlantic rhynchocinetid shrimp.

Distribution.—Known only from the Virgin Islands and Florida.

Remarks.—*Cinetorhynchus manningi* differs from the other seven congeners by the absence of arthrobranches on the second and third pereiopods (Fig. 2I), whereas other species of *Cinetorhynchus* have an arthrobranch on each of the first three pereiopods. *Cinetorhynchus manningi* is the second species of Rhynchocinetidae from the Atlantic Ocean. The present new species is

distinguished from the other Atlantic species, *C. rigens* (Gordon, 1936), by having three accessory claws on the inferior margin of the dactyli of the third to fifth pereiopods, a small posteroventral protrusion on the fourth abdominal somite, a well developed podobranch on the second maxilliped and the distinct interval between the proximal four teeth and the distal smaller teeth on ventral margin of rostrum. *Cinetorhynchus rigens* possesses only two accessory claws on the dactyli of the ambulatory pereiopods, unarmed, rounded posteroventral angle of the fourth abdominal somite, an oblong vestige of podobranch on the second maxilliped, and ventral teeth on the rostrum decrease regularly in size distally (Gordon 1936, Okuno 1996).

The dorsal spination of the telson in the holotype is an abnormal condition, and can be attributed to intraspecific variation. The paratype does exhibit the normal condition.

The holotype of the present new species was included in the various specimens reported as *Rhynchocinetes rigens* (= *C. rigens*) by Manning (1961). In his report, Manning (1961) mentioned that there are two patterns of colorations in the western Atlantic population of *C. rigens*. However, the type specimens of *C. manningi* had lost their color pattern when I examined them. In some publications, beautiful underwater photographs have been included of an unidentified Atlantic rhynchocinetid species, the coloration of which definitively disagrees with that of *C. rigens* (see Baensch & Debelius 1992; Debelius 1983, 1984; Humann 1992). This unidentified species has the red ground color on the whole body surface covered with fine pale white spots on the carapace, and five pale white transverse bands on the abdominal somites. I have not seen any specimen having the coloration mentioned above. Although the coloration is diagnostic in rhynchocinetids (Nomura & Hayashi 1992; Okuno 1994a, 1994b, 1996; Okuno & Takeda 1992), I could not determine that of the new species during this study.

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